

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently amended) A method for the separation of light-conducting fibers by means of CO₂ laser radiation, ~~therein characterized, comprising the steps of:~~
~~in that selected~~ selecting from CO₂ laser radiation is a disengaged operative beam (8) comprised of individual pulses with the beam parameters as follows:

$$\text{Pulse peak power } (\hat{P}) = \text{some } W \leq \hat{P} \leq 1 \text{ kW},$$

$$\text{Pulse half value } (\tau_{imp}) = 10^{-5} \leq \tau_{imp} \leq 10^{-4} \text{ sec}$$

$$\text{Pulse repetitive frequency } (f_{imp}) = 100 \text{ Hz} \leq f_{imp} \leq \text{a plurality of kHz};$$

and

~~in that the operative beam (8) is focused~~ focusing the operative beam on a fixed light-conducting fiber; and ~~is moved~~

moving the operative beam back and forth in a plane along a working zone, so that per pulse, one elementary volume, which ~~approaches is approximately equality with to the~~ a product of optical penetration depth (d) times the incident beam cross-section, with a diameter somewhat equal to that of the focus (d_f), but in any case, smaller ~~then than~~ 2 (d_f), is ~~taken away removed~~, until the said light-conducting fiber is completely cut through.

2. (Currently amended) ~~A The method in accord with of claim 1, therein characterized,~~
~~in that, wherein~~ between the individual back and forth movemenets over the optical light-conducting fiber, a cooling off phase in the area of from about 10 ms to about
~~---100 ms is created, in order to assure a sufficient cooling of the working zone.~~
3. (Currently amended) ~~A The method in accord with of claim 1, therein characterized,~~
~~in that wherein~~ the beaming parameters; are adjustable during the operation are

~~caused to fit the different characteristics of the raw materials of comprising the optical light-conducting fiber.~~

4. ~~(Currently amended) A~~ The method in accord with of claim 1, ~~therein characterized, in that wherein~~ the light-conducting individual fibers ~~can be of comprise~~ different shapes and thicknesses, ~~that is, they can be mono-mode and multi-mode fibers, gradient fibers or unclad fibers or clad fibers.~~
5. ~~(Currently amended) A method~~ The method in accord with of claim 1, ~~therein characterized in that the method can be used wherein the light-conducting fiber comprises at least one offer~~ fiber bundles and fiber components.
6. ~~(Currently amended) A~~ The method in accord with of claim 1, ~~therein characterized, in that wherein an the elementary volume is very small, that is to say, smaller than 10^{-3} as compared to the a total volume removal removed upon the complete separation, and especially the optical penetration depth (d) made at a single overrun of the bundle by the probe is small as compared to the diameter of the fiber's core (1).~~
7. ~~(Currently amended) A~~ The method in accord with of claim 1, ~~therein characterized, in that wherein the working zone is blown with an operational gas selected for the purpose, for example, purified compressed air at about 1 bar working pressure, in order to eject the evolved material vapors from the working zone.~~
8. (New) The method of claim 4, wherein the light conducting fibers are selected from a group consisting of mono-mode, multi-mode, gradient, unclad, and clad fibers.
9. (New) The method of claim 7, wherein the operational gas consists of purified compressed air at about 1 bar working pressure.